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Example from profile Rolling Mill

Fig. 1

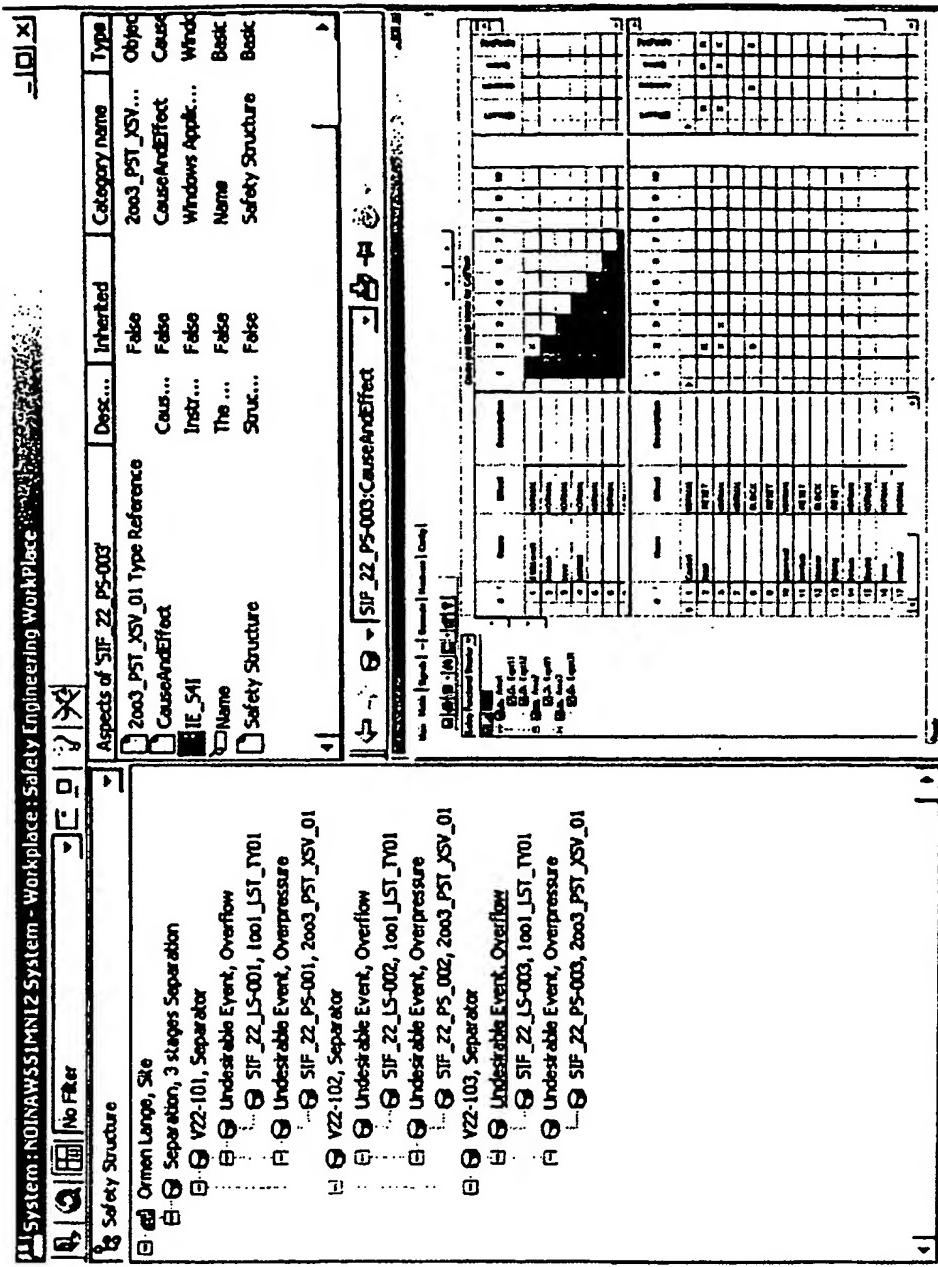
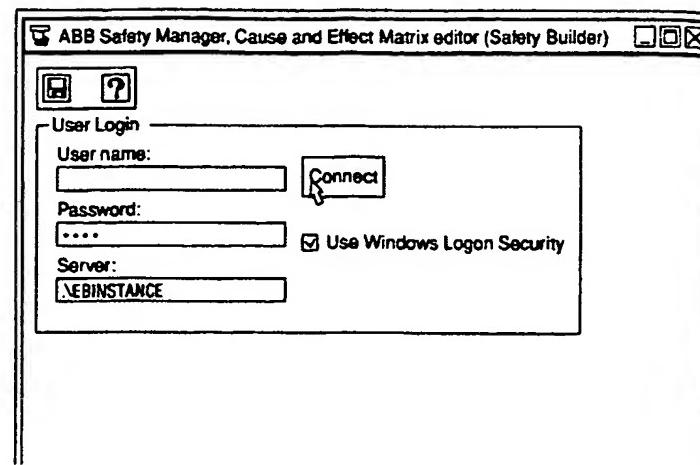
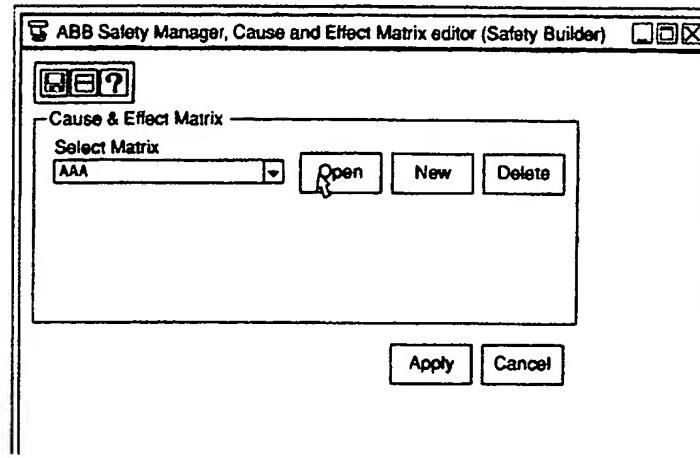


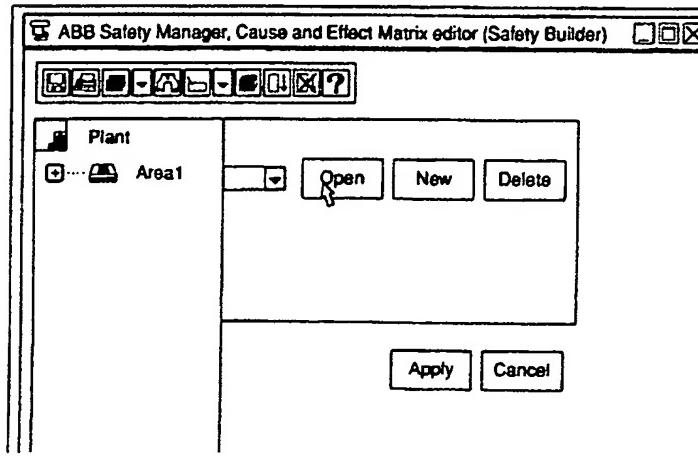
Fig. 2



1



2



3

Fig. 3

4

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

Cause and Effect Matrix for AAA								
#	Name	Description	Designation	1	2	3	4	Effekt
1	ESDLevel1		ZLEV1					X
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								X

5a

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

Cause and Effect Matrix for AAA								
#	Name	Description	Designation	1	2	3	4	Effekt
1	ESDLevel1		ZLEV1					X
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

Fig. 3 cont.

**ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)**

Cause and Effect Matrix for AAA								
Name	Description	Designation	1	2	3	4	Effect	ID
1 ESDLevel1		ZLEV1					X	
2								
3								
4								
5								
6								
7								
Name	Description	Designation	1	2	3	4	Effect	ID
1 Cause1		ZCAU1	X				X	
2 regsts								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

5b

**ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)**

Cause and Effect Matrix for AAA								
Name	Description	Designation	1	2	3	4	Effect	ID
1 ESDLevel1		ZLEV1					X	
2								
3								
4								
5								
6								
7								
Name	Description	Designation	1	2	3	4	Effect	ID
1 Cause1		ZCAU1	X				X	
2 regsts								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

5c

Name	Description	Designation	1	2	3	4	Effect	ID
1 Cause1		ZCAU1	X				X	
2 regsts								
3								
4								
5								
6								

6

Fig. 3. cont.

6

Cause and Effect Matrix for AAA									
	Name	Description	Designation	1	2	3	4	Effects	ID
1	ESD_Level1		ZLEV1		X				
2									
3									
4									
5									
6									
7									
	Name	Description	Designation	1	2	3	4	Effects	ID
1	Cause1		ZCAU1	X					
2	Register								
3									

7a

CEM Cause: Cause1

Variable		3 Signals	
Name	Cause1	Area	Plant
Designation	ZCAU1	Delay (s):	0 <input type="button" value="Set"/>
Designation:			
Active	NORMAL		
Latchable	<input type="checkbox"/>	< Play	
Blockable	<input type="checkbox"/>	Next >	
Position no: 1			

7b

CEM Cause: Cause1

Variable		3 Signals	
Input Datatype: bcol		Confirmation criteria: <input type="button" value="Set"/>	1 Signals out of: 3
Signals U			
Name	Description	Assign	Normal
Samplecolla1	Sample signal	IX0.11.1.1	ND
Samplecolla2	Sample signal	Unassigned	ND
Samplecolla3	Sample signal	Unassigned	ND
<input type="button" value="Show available signals"/>		<input type="button" value="OK"/>	<input type="button" value="Apply"/>
<input type="button" value="Edit Cause"/>		11/2/2003	S 48 Pm

Fig. 3. cont.

CEM Cause: Cause1											
Variable											
Input Datatype: bcol Confirmation: <table border="1"> <thead> <tr> <th colspan="2">Signals</th> </tr> <tr> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Samplecolla1</td> <td>Sample signal IX</td> </tr> <tr> <td>Samplecolla2</td> <td>Sample signal Ur</td> </tr> <tr> <td>Samplecolla3</td> <td>Sample signal Ur</td> </tr> </tbody> </table>		Signals		Name	Description	Samplecolla1	Sample signal IX	Samplecolla2	Sample signal Ur	Samplecolla3	Sample signal Ur
Signals											
Name	Description										
Samplecolla1	Sample signal IX										
Samplecolla2	Sample signal Ur										
Samplecolla3	Sample signal Ur										
<input type="button" value="Hide available signals"/>	<input type="button" value="Hide signals"/>										
Signals											

CEM Cause: Cause1											
Variable											
Input Datatype: bcol Confirmation: <table border="1"> <thead> <tr> <th colspan="2">Signals</th> </tr> <tr> <th>Name</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Samplecolla1</td> <td>Sample signal</td> </tr> <tr> <td>Samplecolla2</td> <td>Sample signal</td> </tr> <tr> <td>Samplecolla3</td> <td>Sample signal</td> </tr> </tbody> </table>		Signals		Name	Description	Samplecolla1	Sample signal	Samplecolla2	Sample signal	Samplecolla3	Sample signal
Signals											
Name	Description										
Samplecolla1	Sample signal										
Samplecolla2	Sample signal										
Samplecolla3	Sample signal										
<input type="button" value="Hide available signals"/>	<input type="button" value="Hide signals"/>										
Edit Cause											

7C

8a

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

Cause and Effect Matrix for AAA								
#	Name	Description	Designation	1	2	3	4	Effect
1	ESDLevel1		ZLEV1		X			
2								
3								
4								
5								
6								
7								
Cause and Effect Matrix for AAA				Effect				
1	Cause1		ZCAU1	X				
2	repsfs				X			
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

Fig. 3 cont.

**ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)**

**Cause and Effect Matrix for AAA**

#	Name	Description	Designation	1	2	3	4	Effect
1	ESDLevel1		ZLEV1					X
2								
3								
4								
5								
6								
7								

**Cause and Effect Matrix for AAA**

#	Name	Description	Designation	1	2	3	4	Effect
1	Cause1		ZCAU1	X				X
2	regsts							
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

8b

#	Name	Description	Designation	1
1	ESDLevel1		ZLEV1	
2				
3				
4				
5				
6				
7				

#	Name	Description	Designation	1
1				
2	regsts			
3				
4				
5				
6				
7				

8c

Fig. 3 cont.

9

**ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)**

#	Name	Description	Designation	1	2	3	4	Effect
1	ESDLevel1	ZLEV1	NO					X
2			NO					
3			NO					
4			NO					
5			NO					
6			NO					
7			NO					

#	Name	Description	Designation	1	2	3	4	Effect
1	CH1SP	CH1SP	NO					X
2	regsts		NO					
3			NO					
4			NO					
5			NO					
6			NO					
7			NO					
8			NO					
9			NO					
10			NO					
11			NO					
12			NO					
13			NO					

10

**ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)**

Digital Signals			
Name	Description	Assign	Normal Value
SampleboolIn1	Sample signal	IX0.11.1.1	ND
SampleboolIn2	Sample signal	Unassigned	ND
SampleboolIn3	Sample signal	Unassigned	ND
SampleboolOut4	Sample signal	Unassigned	ND
SampleboolOut5	Sample signal	Unassigned	ND
SampleboolOut6	Sample signal	Unassigned	ND

Digital      Analog

Fig. 3 cont.

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

Digital Signals			
Name	Description	Assign	Normal Value
SampleboolIn1	Sample signal	IX0.11.1.1	ND
SampleboolIn2	Sample signal	Unassigned	ND
SampleboolIn3	Sample signal	Unassigned	ND
SampleboolOut4	Sample signal	Unassigned	ND
SampleboolOut5	Sample signal	Unassigned	ND
SampleboolOut6	Sample signal	Unassigned	ND

10

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

Controller
Controller name: CemController
IP Address: 172.16.0.0
Controller Type: AC 800M HI Create
Controller Hardware Units
<input checked="" type="checkbox"/> CemController.0
<input type="checkbox"/> ModuleBus

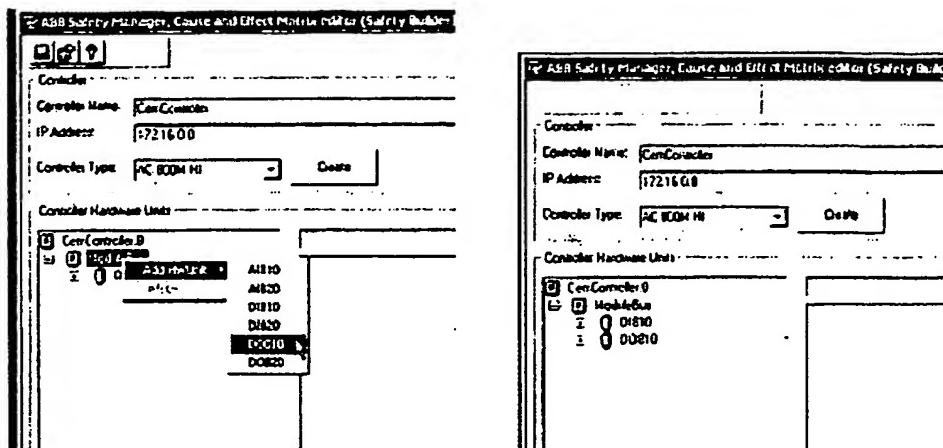
11

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

Controller
Controller name: CemController
IP Address: 172.16.0.0
Controller Type: AC 800M HI Create
Controller Hardware Units
<input checked="" type="checkbox"/> CemController.0
<input type="checkbox"/> ModuleBus
<input type="checkbox"/> Add HW Unit
<input type="checkbox"/> Delete
AIB10 AIB20 DI810 DI810 DO810 DO820

12

Fig. 3 cont.

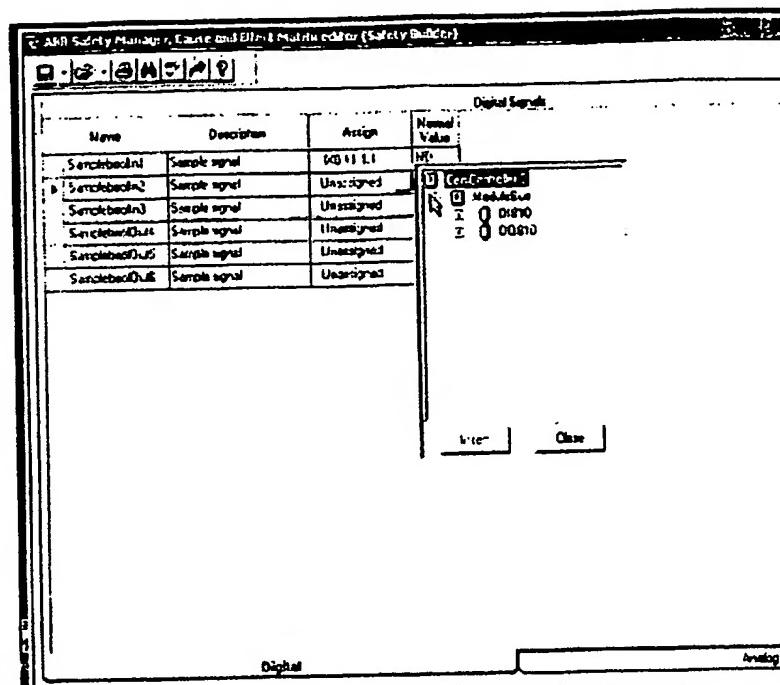


13

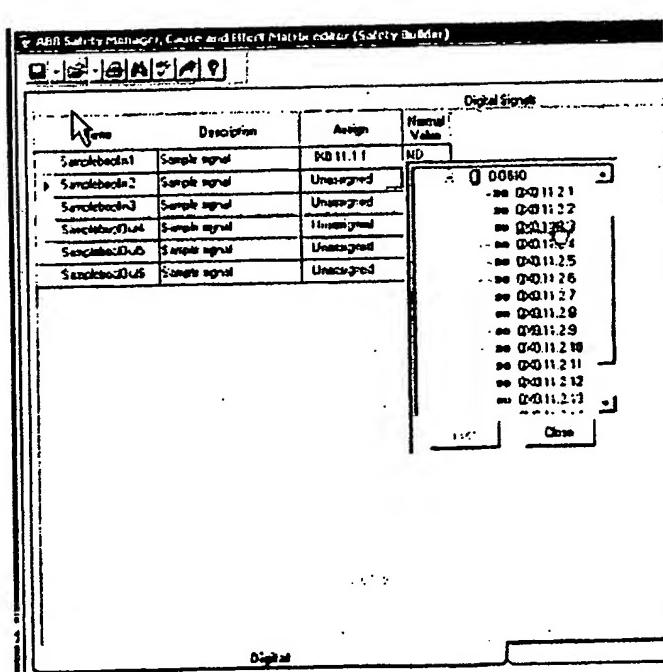
Name	Description	Assign	Normal Value
SampledBool1	Sample signal	MD11.11	ND
SampledBool2	Sample signal	Unassigned	ND
SampledBool3	Sample signal	Unassigned	ND
SampledBool4	Sample signal	Unassigned	ND
SampledBool5	Sample signal	Unassigned	ND
SampledBool6	Sample signal	Unassigned	ND

14

Fig. 3 cont.

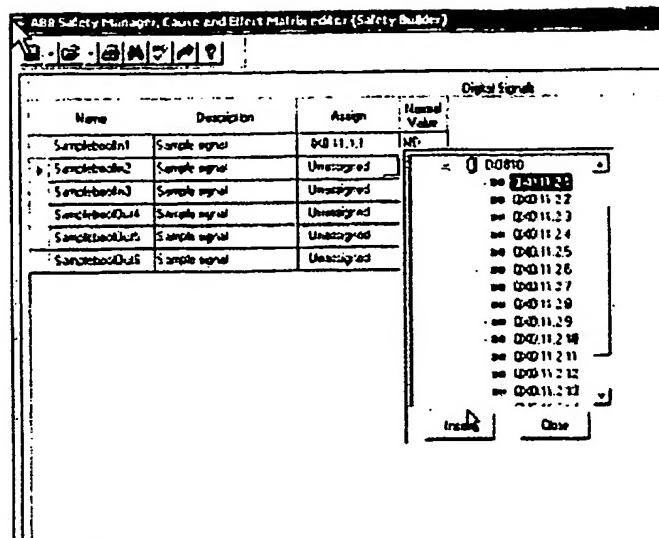


15a

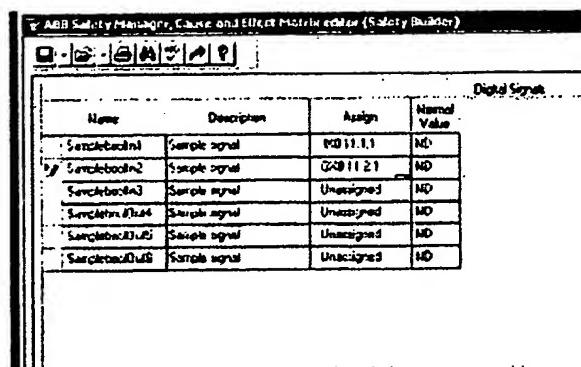


15b

Fig. 3 cont.



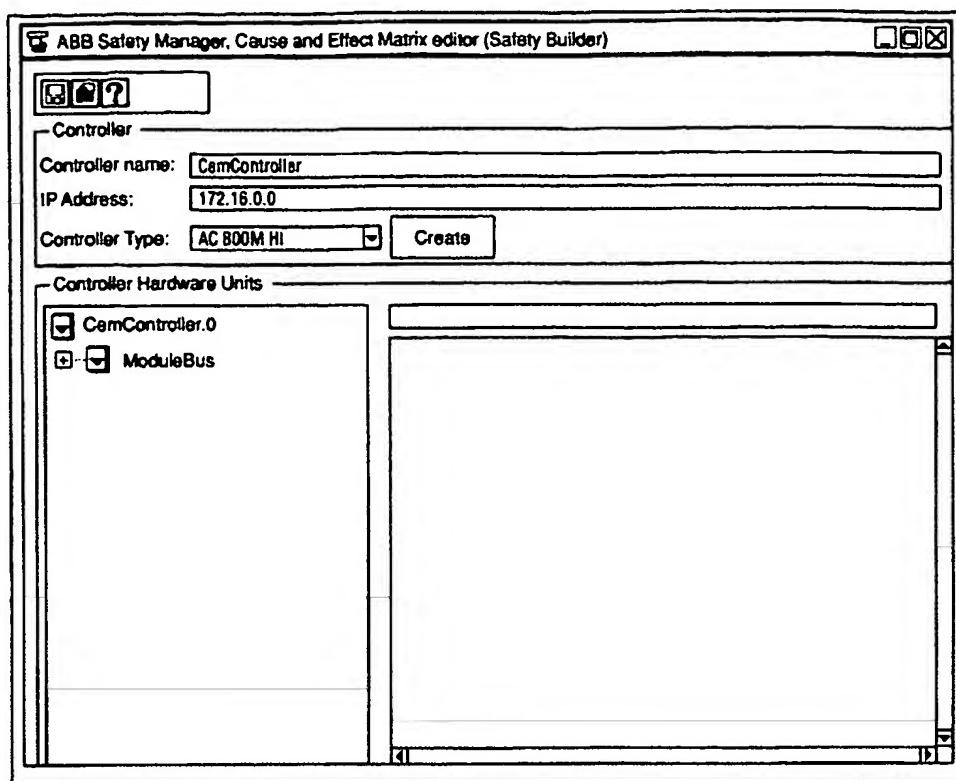
15c



16

Fig. 3 cont.

17



18

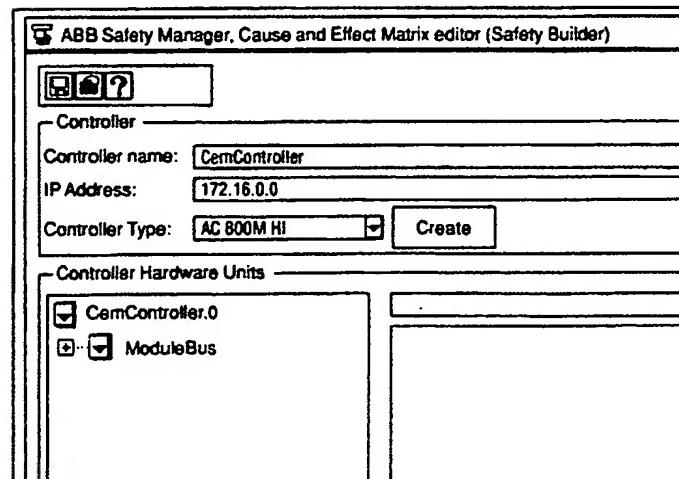
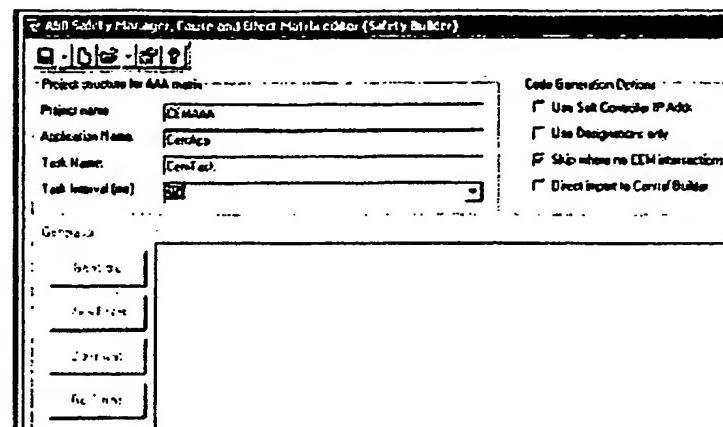


Fig. 3 cont.

19



20

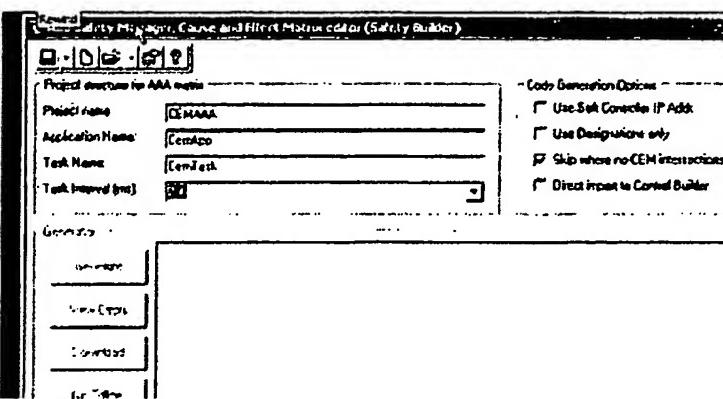


Fig. 3 cont.

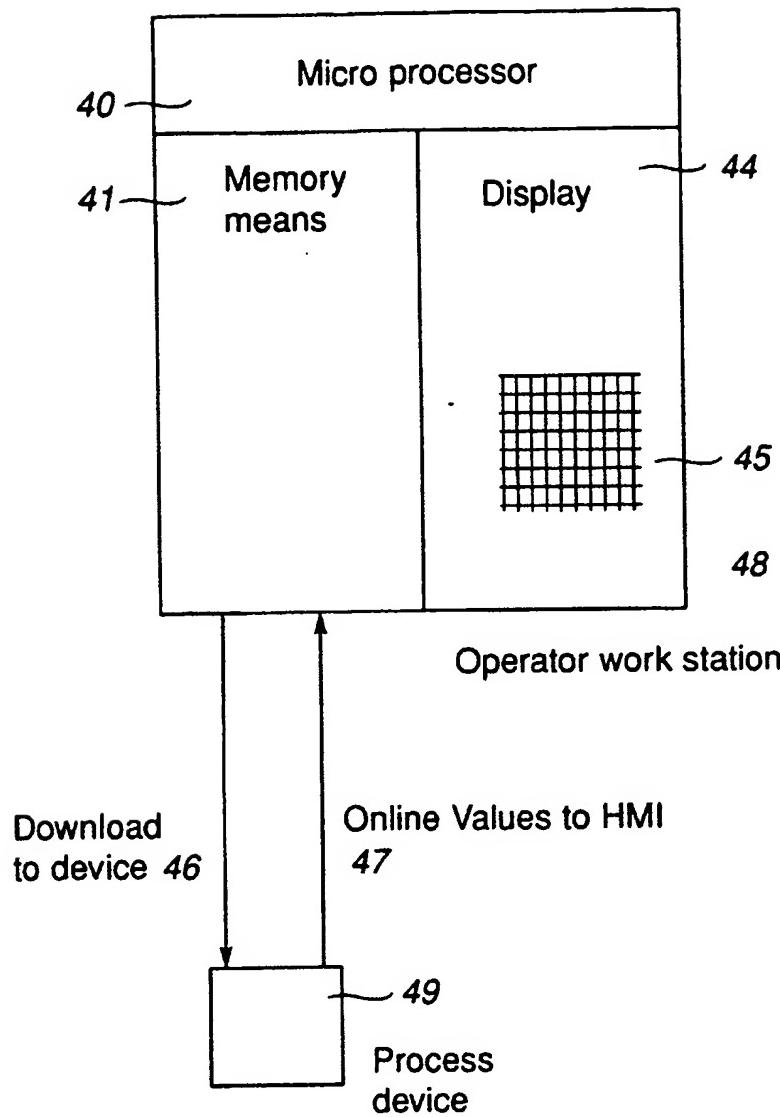


Fig. 4

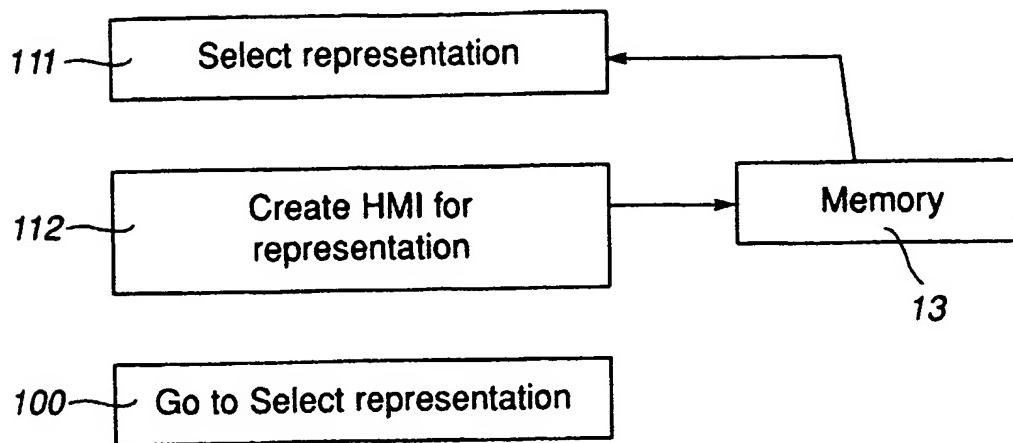


Fig. 5a

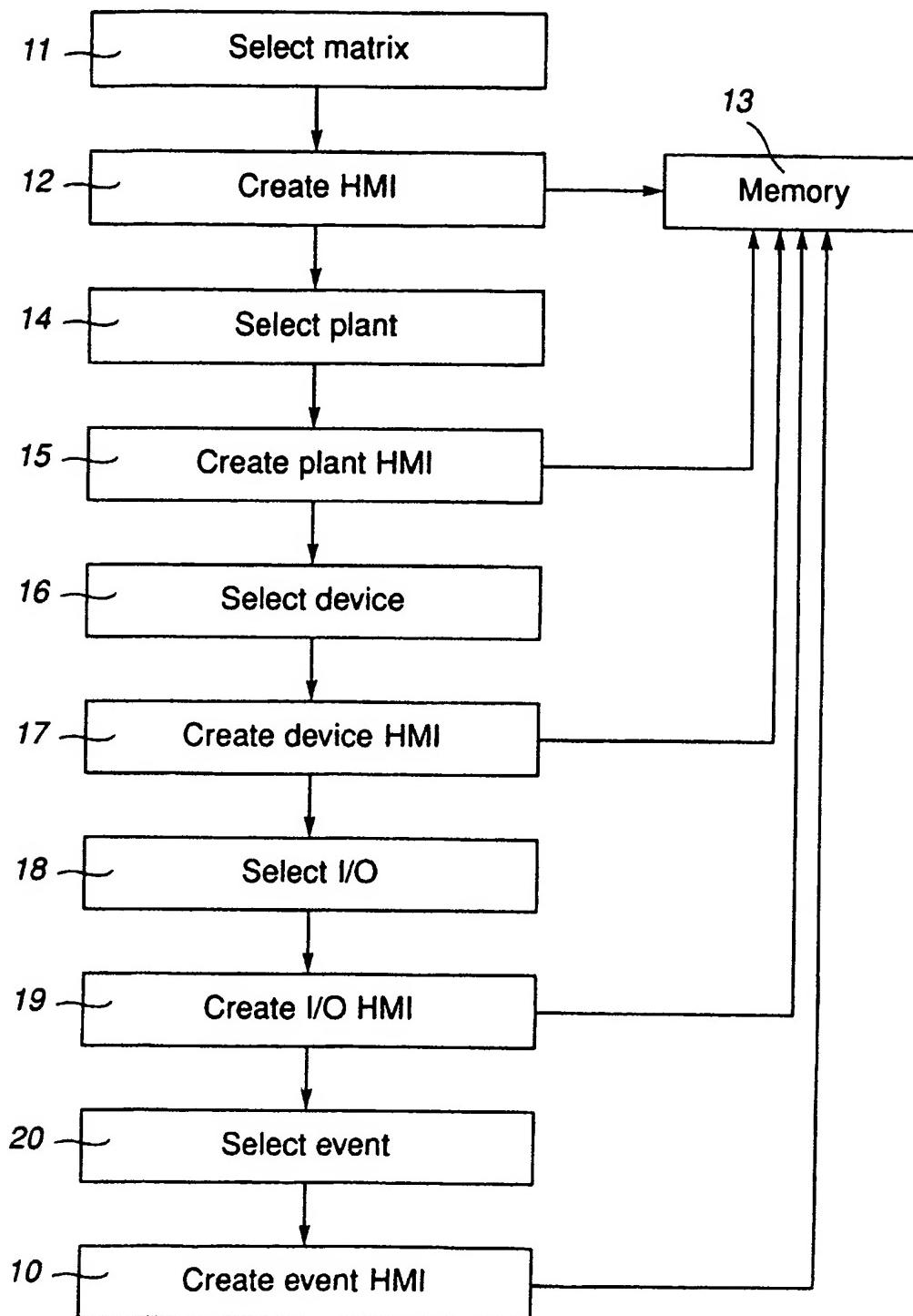


Fig. 5b

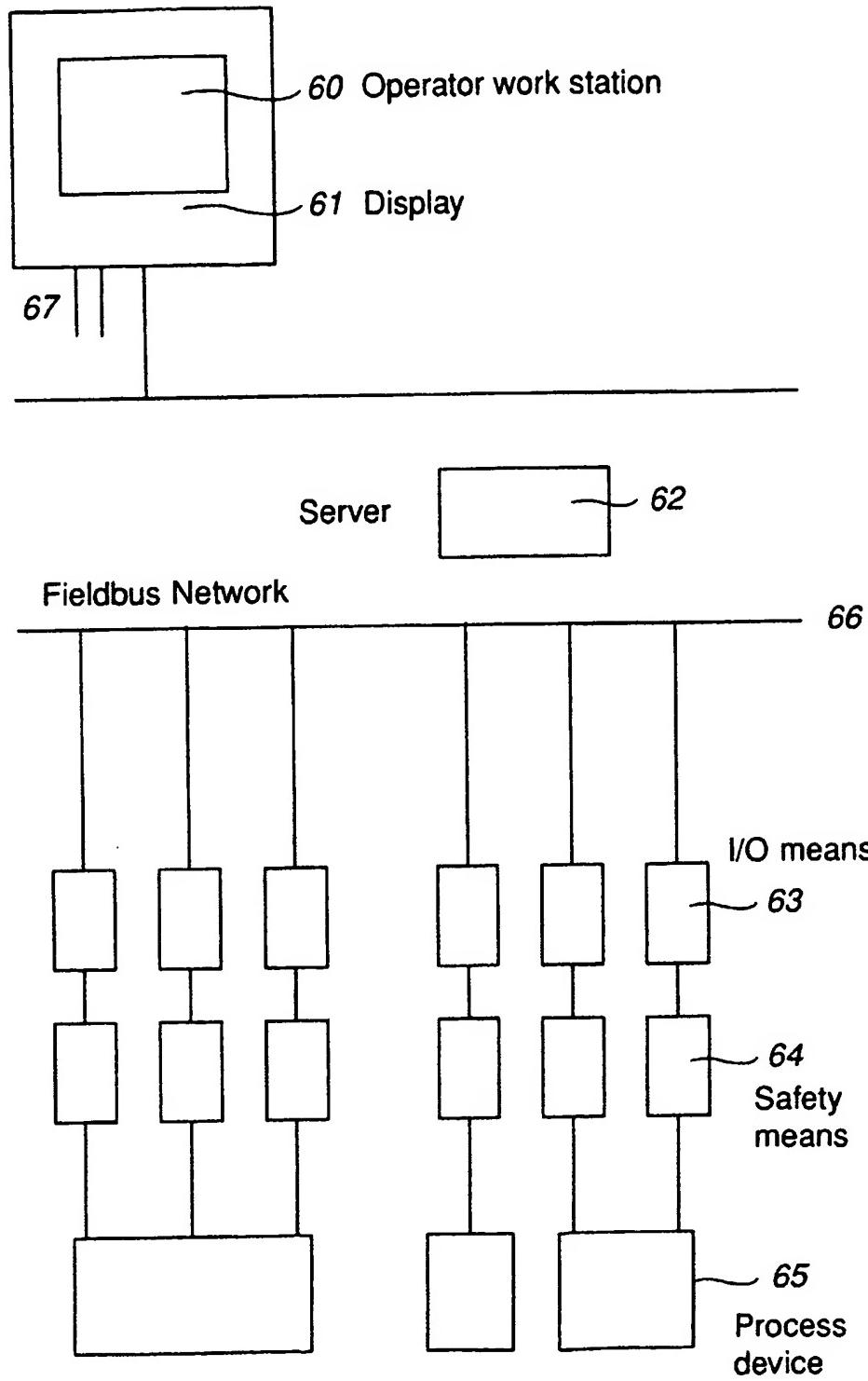


Fig. 6

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